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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 596,755	06 15 2000	Hisashi Ohtani	07977 226002 US3548D1	3261

7590

05 06 2002

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EXAMINER

KUNEMUND, ROBERT M

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 05 06 2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/596,755

Applicant(s)

OHTANI, HISASHI

Examiner

Robert M Kunemund

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1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1 ☐ Certified copies of the priority documents have been received.
- 2 ☐ Certified copies of the priority documents have been received in Application No. _____.
- 3 ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- ☐ The translation of the foreign language provisional application has been received.

- 1 ☐ References cited: PTO-948
- 2 ☐ Draftsperson's Patent Drawing Review (PTO-948)
- 3 ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

- 4 ☐ Interview Summary (PTO-948)
- 5 ☐ Notice of Informal Patent Application (PTO-948)
- 6 ☐ Other

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The Rejections

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2 to 48 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are not fully supported by the originally filed specification. The specification is limited to crystallization of silicon with a catalyst material. This limitation is not found in the instant claims. Thus, the claims contain material not found in the origin specification.

Claims 2, 3, 5-9, 11-15, 17-24, 26-31, 33-36, 38-41, and 43-48 are further not supported by the instant specification, as the specification is limited to the formation of silicon. The claims recite semiconductor layers, which includes group III-V materials, which are not taught in the specification.

Claims 2 to 19 do not recite the crystallization of amorphous silicon. The claims merely recite treating a layer, which is not limited to crystallization as is the specification. Thus, the claims are not supported by the specification.

It is not allowable to further limit the subject matter of a previous claim. Applicant is required to

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cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims recite at least two pairs of lights.

However, all the independent claims that claims 46 to 48 now recite the same limitations. Thus, claims 46 to 48 do not further limit the independent claims

The Following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 to 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. in view of Hirano et al (5,771,110)

The Nakajima et al reference teaches a method of crystallizing semiconductor material. On a substrate an amorphous layer is deposited by standard methods. A metal is then placed in contact with the amorphous layer. The metal promotes crystallization at lower temperatures. A laser or heat source is started at the place where the metal and the amorphous material are in contact to create a temperature gradient. The laser is then moved across the layer to crystallize the amorphous material by temperature gradients, note entire reference. The sole difference between the instant claims and the prior art is the heat source below and above the silicon. However, the Hirano et al reference teaches the crystallization of silicon in devices, including

it would have been obvious to one of ordinary skill in the art to modify the Nakajima et al reference

by the teachings of Hirano et al reference to heat above and below in order to increase the speed of crystallization and increase control of the growth fronts.

Response to Applicants' Arguments

Applicant's arguments filed February 15, 2002 have been fully considered but they are not persuasive.

Applicant's argument concerning the amount of lights is noted. However, this is an apparatus limitation in the process claims, note, In re Tarzy-Hornock, 158 USPQ 141. The reference does teach the use of the lamps and a preheating and annealing steps using the lamps. Therefore, the use of multiple lamps is well within the skill of the art.

Any communication or earlier communications from the examiner should be directed to Robert Kunemund whose telephone number is (703) 308-1091. The examiner can normally be reached on Monday through Friday from 7:00 to 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ben Utech, can be reached on (703) 308-3836. The fax phone number for this Group is (703) 305-6357.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

RMK

April 30, 2002

ROBERT KUNEMUND
PRIMARY EXAMINER